

Amendments to the Claims

The following presents a current claim listing for the convenience of the Examiner. No amendments to the claims are currently submitted.

1. (Previously presented) A user interface device comprising:
a hand-held housing;
a first user interface element configured with said hand-held housing and generating a first plurality of signals responsive to movement of said hand-held housing relative to two orthogonal axes;
a second user interface element configured with said hand-held housing comprising a freely-rotating trackball configured to be displaceable in two independent directions relative to said hand-held housing responsive to pressure applied to said trackball;
a displacement sensor generating sensor signals independently responsive to each of the two independent directions of displacement of said trackball relative to said hand-held housing;
and
signal circuitry producing an outgoing displacement signal responsive to said sensor signals and a second outgoing signal responsive to the first plurality of signals.
2. (Cancelled)
3. (Previously presented) The user interface device of claim 1, wherein said trackball is displaceable in three independent directions, wherein
said displacement sensor generates said sensor signals responsive to said three independent directions of said displacement of said trackball.
4. (Original) The user interface device of claim 1, further comprising:
a rotation sensor generating a rotation sensor signal responsive to a component of rotation applied to said trackball, wherein
said signal circuitry further producing an outgoing rotational signal responsive to said rotational sensor signal.

5. (Original) The user interface device of claim 1, further comprising:
a rotation sensor generating a rotation sensor signal responsive to two independent components of rotation applied to said trackball, wherein
said signal circuitry further producing an outgoing rotational signal responsive to said rotational sensor signal.

6. (Original) The user interface device of claim 1, further comprising:
a rotation sensor generating a rotation sensor signal responsive to three independent components of rotation applied to said trackball, wherein
said signal circuitry further producing an outgoing rotational signal responsive to said rotational sensor signal.

7. (Original) The user interface device of claim 1, wherein said displacement sensor comprises a variable resistive element.

8. (Original) The user interface device of claim 1, wherein said displacement sensor comprises a variable capacitive element.

9. (Original) The user interface device of claim 1, wherein said displacement sensor comprises an electro-magnetic element.

10. (Original) The user interface device of claim 1, wherein said displacement sensor comprises an optical element.

11. (Original) The user interface device of claim 1, wherein said displacement sensor comprises at least one switch.

12. (Original) The user interface device of claim 1, wherein said displacement sensor comprises a pressure sensor.

13. (Original) The user interface device of claim 1, wherein said outgoing displacement signal defines a click event.

14. (Original) The user interface device of claim 1, wherein said outgoing displacement signal is one parameter of a widely-varying adjustable parameter.

15. (Previously presented) A user interface device comprising:
a hand-held housing;
a first user interface element configured with said hand-held housing and generating a first plurality of signals responsive to movement of said hand-held housing relative to two orthogonal axes;
a second user interface element configured with said hand-held housing comprising a freely-rotating trackball configured to rotate relative to said hand-held housing;
a rotation sensor generating a sensor signal responsive to one or more of three independent directions of rotation of said trackball; and
signal circuitry producing an outgoing rotational signal responsive to said sensor signal, said outgoing rotational signal comprising three rotational component signals, each uniquely associated with one of said three independent directions of rotation of said trackball, said signal circuitry further producing a second outgoing signal responsive to the first plurality of signals.

16. (Original) The user interface device of claim 15, wherein each of said three independent directions of rotation of said trackball respectively comprise roll, pitch, and yaw of said trackball.

17. (Original) The user interface device of claim 15, wherein said signal circuitry comprises a signal processor.

18. (Original) The user interface device of claim 15, wherein a first of said three rotation component signals is generated in response to rotational roll of said trackball, a second of said three rotation component signals is generated in response to rotational pitch of said trackball, and a third of said three rotation component signals is generated in response to rotational yaw of said trackball.

19. (Original) The user interface device of claim 15, wherein said rotation sensor comprises a capacitance sensor.

20. (Original) The user interface device of claim 15, wherein said rotation sensor comprises an optical sensor.

21. (Original) The user interface device of claim 15, wherein said rotation sensor comprises a magnetic sensor.

22. (Original) The user interface device of claim 15, wherein said rotation sensor comprises an electro-magnetic sensor.

23. (Original) The user interface device of claim 15 wherein said rotation sensor comprises an acoustic sensor.

24. (Original) The user interface device of claim 15, wherein said rotation sensor detects at least one resonance.

25. (Original) The user interface device of claim 15, wherein said rotation sensor detects at least one polarization component.

26. (Original) The user interface device of claim 15, wherein one direction of said three independent directions of rotation defines a click event.

27. (Previously presented) The user interface device of claim 15, said hand-held housing further comprising:
a saddle assembly configured to be displaceable within said housing responsive to pressure applied to said trackball;
a displacement sensor generating a displacement sensor signal responsive to said displacement of said saddle assembly relative to said housing; and
said sensor signal circuitry further producing an outgoing displacement signal responsive to said displacement sensor signal.

28. (Original) The user interface device of claim 27, wherein said displacement sensor comprises at least one switch.

29. (Original) The user interface device of claim 27, wherein said displacement sensor comprises a pressure sensor.

30. (Original) The user interface device of claim 27, wherein said outgoing displacement signal defines a click event.

31. (Original) The user interface device of claim 27, wherein said outgoing displacement signal is one parameter of a widely-varying adjustable parameter.

32. (Original) The user interface device of claim 27, wherein said saddle assembly is displaceable in two independent directions, wherein
said displacement sensor generates said displacement sensor signal responsive to said two independent directions of said displacement of said saddle assembly.

33. (Original) The user interface device of claim 27, wherein said saddle assembly is displaceable in three independent directions, wherein
said displacement sensor generates said displacement sensor signal responsive to said three independent directions of said displacement of said saddle assembly.